



# Quarterly Project Status

## October 26, 2005

### Vashon-Maury Island Water Resources Evaluation

October 26, 2005



# Quarterly Review

- Ongoing monitoring overview
- Modeling update
- Monitoring well installation update
- GW Web Page updated
- Budget

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# Island Monitoring

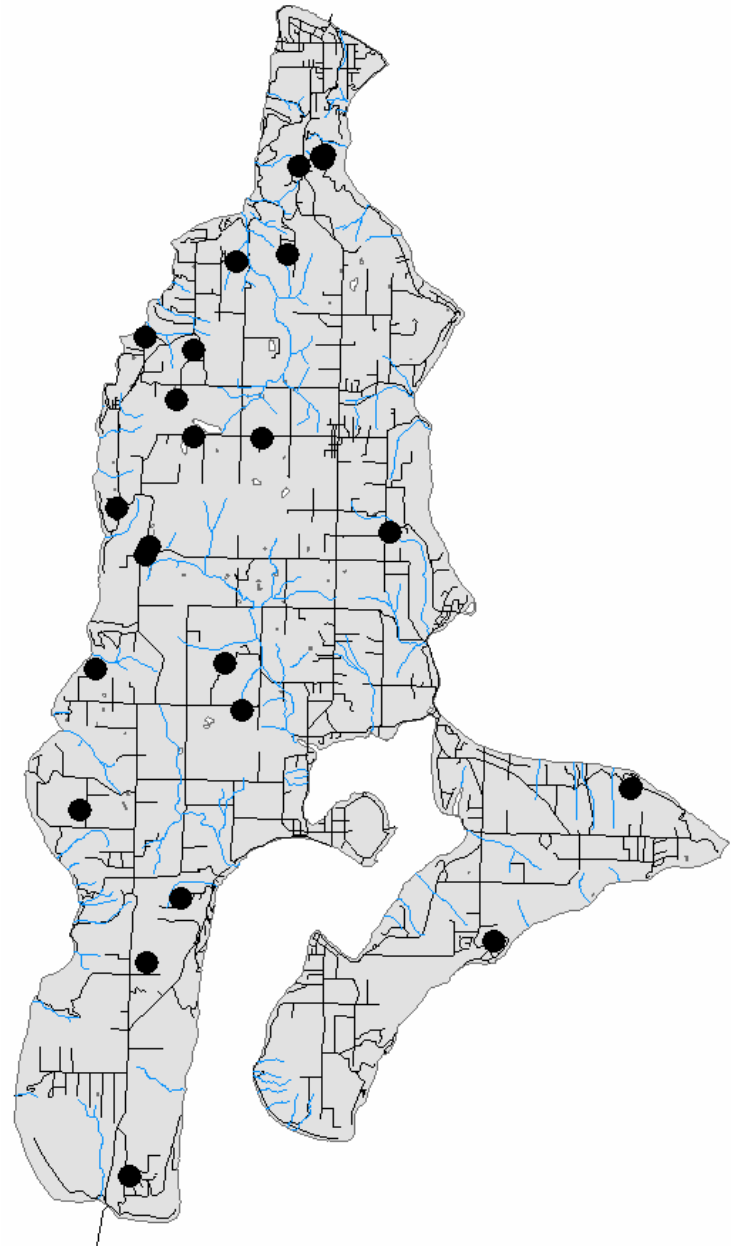
- WL survey started in September
- Island-Wide Stream measurements
  - done in Sept to coincide with WL survey
  - 21 sites done
- Stream and Precipitation gaging continuing
  - Plan to upgrading a site to be a "full" meteorological station
    - precipitation, air temperature, wind speed, wind direction, solar radiation, and % cloud cover
- All monitoring data to be presented in annual data report

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# WL survey sites

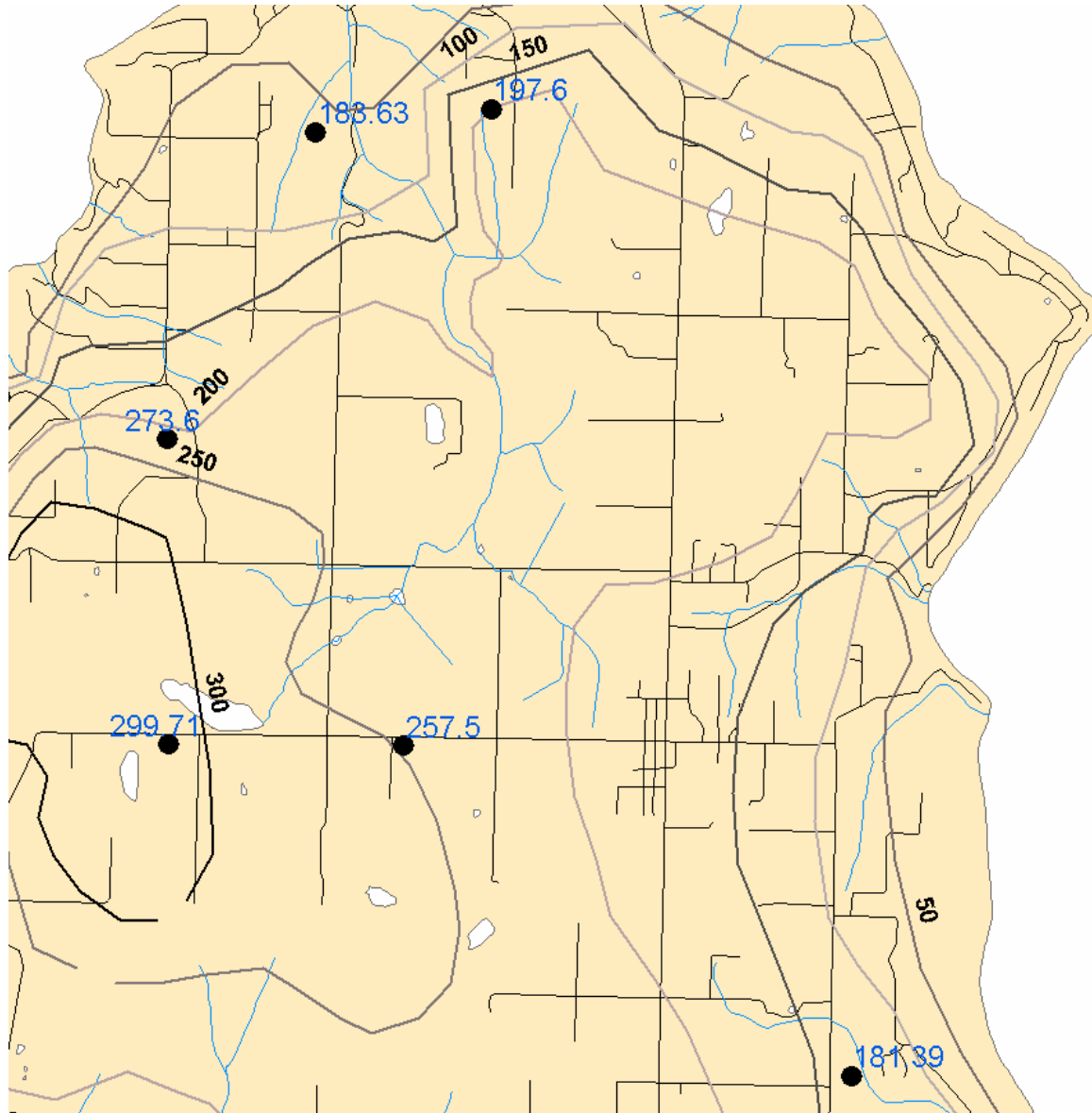
Measurements done in Sept. at  
24 locations

Next measurements to be done  
in Nov/Dec



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# Water Level Elevation Contours





# WRE Modeling

- Phase I model report done
- Phase I modeling Peer Review
  - in review: soliciting assistance
- Phase I results (next slides)
- Phase II started

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# Water Balance - comparison

	VMI WRE Phase I GW model (this report)		Carr Report (JR Carr/Assocs, 1983)		Groundwater Management Plan (VMI GWPC, 1998)	
<u>Inflows</u>	gpm	% of precip	gpm	% of precip	gpm	% of precip
Precipitation	49584	100%	48851	100%	56500	100%
ET	21410	43%	24425	50%	22370	40%
runoff	11719	24%	18319	37%	13170	23%
GW inflow	16455	33%	6107	13%	20960	37%
<u>Outflows</u>						
Puget Sound	13501	27%	1224	3%	8110	14%
Streams	1841	4%	4882	10%	12850	23%
Wells	753	2%				
Springs	360	1%				

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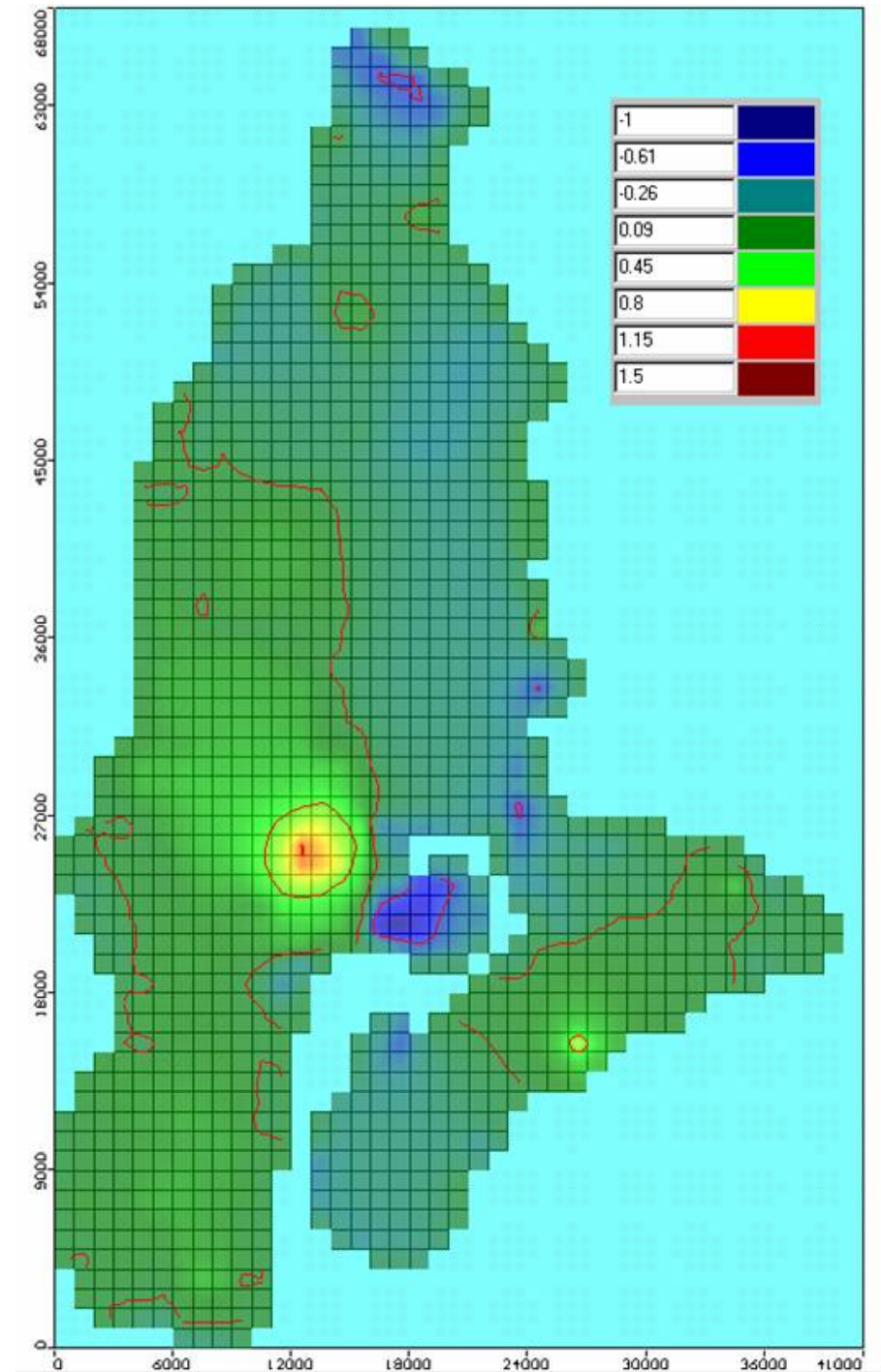


# Model Output: Drawdown for Increased Pumpage (Layer 4, plan view)

Note:

Red areas show drawdown;  
Blue indicate water level rise;  
Green are intermediate.

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# Modeling Phase II

- Phase II surface water modeling
  - Scheduled over several years (2005-2007)
  - started with Judd Creek as template/pilot
    - Judd Creek example highlighted a problem in the HSPF MODFLOW loop. This effort showed that the GW recharge to the basin could be 50 % to 200% of the current recharge and still match the hydrograph of a calibrated basin
- Phase II model will be done with Mike-SHE instead of HSPF - MODFLOW
- New software allows for integration of SW-GW interactions
  - HSPF is unable to modeling the impacts of increased GW pumpage on streams directly.
  - Not direct feedback between HSPF and MODFLOW
  - The Phase I work will import into this new model
  - Better capabilities in modeling different scenarios

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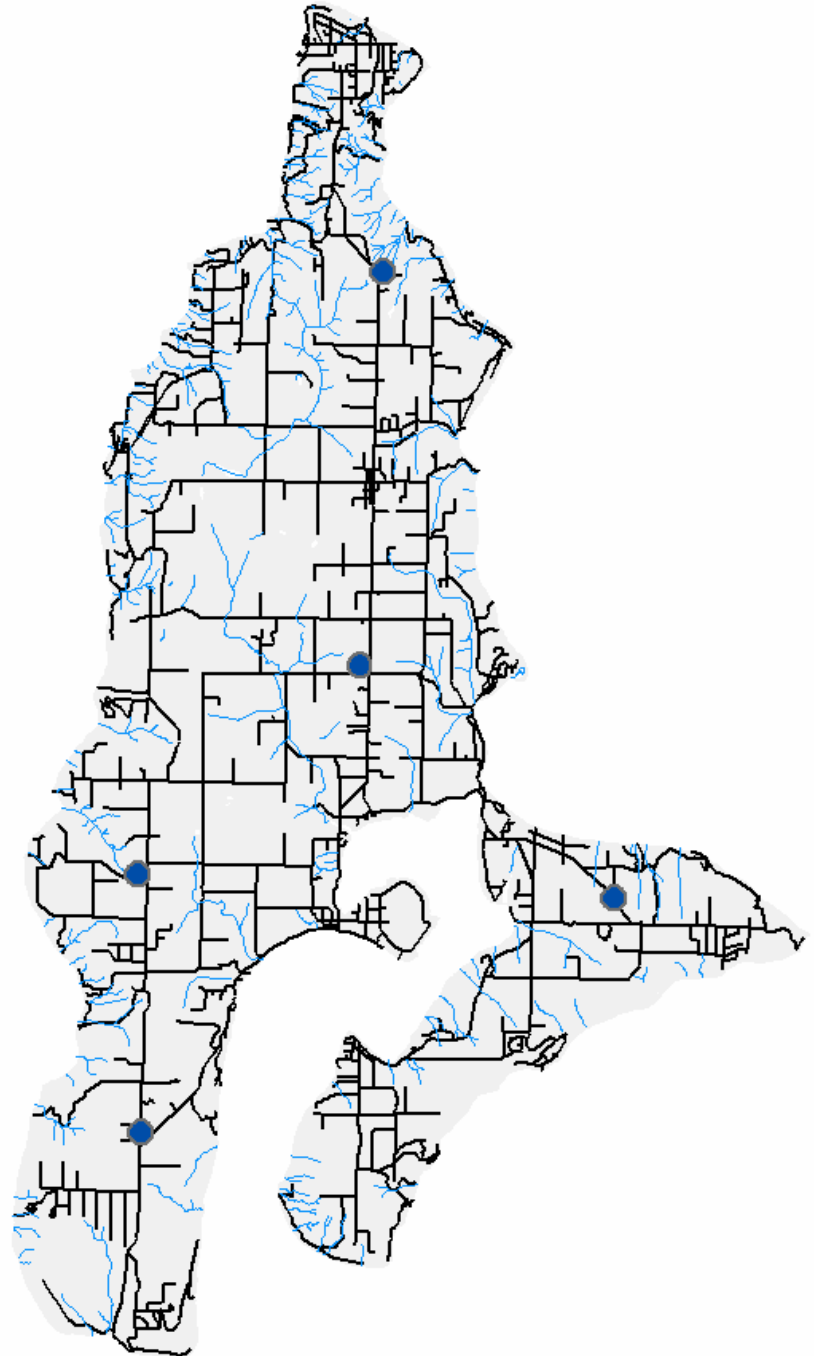
# Monitoring Well Installation

- Started drilling (17Oct05)
  - Finished 1<sup>st</sup> North Vashon (off Vashon Hwy)
    - 240 feet depth – low water producing
    - Qva 177 feet thick – gravels below the till (88' thick) and material became finer with depth until a clay at 269'
- Site locations (next slides)
- Working with King County DOT

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# Monitoring well sites

- 5 areas
- 6 wells
  - 5 - 2" wells
  - 1 - 6" well
- Estimated depths between 200' to 300' each.



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# Current drilling location: Valley Center park-n-ride

Image scale  
~1:10,000

North to top of image

Site in park-n-ride lot  
Off Vashon Hwy,  
north of SW 204<sup>th</sup> Street



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# Groundwater webpage

- Adding new search features
  - Date
  - Single parameter
  - Detect/non-detect
  - Concentration
- Able to download data
- Search via i-Map
- Check out:  
<http://dnr.metrokc.gov/wlr/wq/groundwater.htm>

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## 2005 Budget

- Project budget for 2005 is \$412,151
- Expenses to date: ~\$163,300
  - 39% of our budget
- Project “big- ticket” item coming in this quarter:
  - Monitoring well installation (121K)
  - Phase II modeling (55K)

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